

make the holes concentric with the outer peripheral surface of the cylindrical roller portion, the two rotary shaft portions being inserted and integrally fixed into the holes, respectively, such that the rotary shaft portions are aligned with each other, and thereby the rotary shaft is constituted by the two rotary shaft portions.--

Amend claim 22 as follows:

--22. (amended) ~~The paper feed roller-producing method set forth in claim 19, wherein at least one set of adjacent said cylindrical green molded bodies are connected by a connecting core rod.~~--

R. E M A R K S

This application has been amended so as to place it in condition for allowance at the time of the next Office action.

The Official Action rejects claim 2 under 35 USC §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention.

The Official Action specifically identifies the asserted recitation of one shaft being inserted from two opposite end faces of the cylindrical roller as underlying this rejection.

Applicants note, however, that claim 2 specifically recites that

it is the two rotary shaft portions which are axially inwardly inserted into central portions of opposite end faces of the cylindrical roller portion from opposite sides. As this recitation is explicitly in connection with two rotary shaft portions, it is respectfully suggested that one of skill in the art would know how to insert two separate elements from opposite sides.

The Official Action rejects claims 8-23 under 35 USC §112, second paragraph as being indefinite. Applicants have carefully reviewed the claims and amended the same as necessary in order to eliminate both the bases for the present rejection. Reconsideration and withdrawal of this rejection are therefore respectfully requested.

The Official Action rejects claims 1 and 2 under 35 USC §102(b) as being anticipated by YABUSHITA et al. JP 410017162. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

The Official Action states that he applied YABUSHITA et al. reference teaches a paper feed roller comprising a rotary shaft 2, and a cylindrical roller portion 1 integrated with an outer periphery of the rotary shaft 2. The Official Action further notes that the method of forming the device is not germane to the issue of patentability of the device itself, and the corresponding recitations have therefore not been considered.

Applicants note that claim 1 in its amended form recites a rotary shaft and a cylindrical roller portion, wherein the cylindrical roller portion comprises a mixture of a hydraulic composition. As amended, claim 1 recites no method-specific steps, but instead recites a characteristic of the cylindrical roller that is clearly undisclosed by the applied YABUSHITA et al. reference.

The applied reference discloses a paper feeding-carrying rubber roller composed of vulcanized rubber. In this way, the applied reference is no different from any of the other prior art related to rollers of this type. As described throughout the present specification and as recited in amended independent claim 1, the cylindrical roller portion of the present invention comprises a hydraulic composition. A hydraulic composition is cured through the hydration reaction and is significantly different in composition from the rubber composition disclosed by the applied reference, which necessarily includes cross-linked elements in its final form, as a result of the Vulcanizing process.

Therefore, amended claim 1, and necessarily the claims that depend therefrom, recites a characteristic in connection with the composition of the cylindrical roller portion undisclosed by the reference. As a consequence, Applicants respectfully suggest that the present anticipation rejection cannot be maintained.

The Official Action rejects claims 3, 5, and 8-11 under 35 USC §103(a) as being unpatentable over YABUSHITA et al. in view of CLEMENTS 2,658,262. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

The present rejection offers the secondary CLEMENTS reference for its asserted teaching or suggestion of features related to the presence of a plurality of bodies interengaged and connected by engagement portions.

However, irrespective of the ability of the secondary CLEMENTS reference to teach or suggest that for which it is offered, such reference no more teaches or suggests the composition feature recited implicitly in claims 3 and 5 by virtue of their dependence from amended claim 1.

Furthermore, claims 8-11 are method claims, including independent claims 8 and 10. Each of these amended independent claims recites a step including forming a plurality of cylindrical molded bodies by press molding a mixture of a hydraulic composition. As discussed above in connection with the anticipation rejection, the primary YABUSHITA et al. reference teaches a formation step not including a hydraulic composition, but rather a standard composition used in connection with the Vulcanizing process.

The secondary CLEMENTS reference fails to overcome the shortcomings of the primary reference in connection with teaching

or suggesting the recited method. As a consequence, the combination of references fails to teach or suggest the full set of features recited in the rejected claims, and it is therefore respectfully suggested that the present obviousness rejection cannot be maintained.

The Official Action rejects claims 4 under 35 USC §103(a) as being unpatentable over YABUSHITA et al. in view of CLEMENTS, and further in view of SUKENIK. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

The newly-added SUKENIK reference is merely offered for its asserted teaching or suggestion of a connecting core rod 24 extending over two cylindrical bodies 14. However, the added reference no more teaches or suggests the features implicitly recited in the rejected claim by virtue of its independence from amended independent claimed 1. For at least this reason, the combination of references necessarily fails to disclose the full set of features recited in the rejected claim.

The Official Action rejects claims 6 and 7 under 35 USC §103(a) as being unpatentable over YABUSHITA et al. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

In connection with this rejection, the Official Action states that it would have been obvious to one of ordinary skill in the arts to have used the claimed composition. Applicants

note, however, that the applied YABUSHITA et al. reference not only fails to disclose the particular composition recited in the rejected claims, but further fails to teach or suggest even the general notion of using a hydraulic composition in connection with the recited device.

As addressed in detail in connection with the anticipation rejection based on the same reference, YAMASHITA et al. teaches the use of a standard formulation for use in connection with a Vulcanizing process. This is entirely contrary to, and teaches away from, the present device, which utilizes a mixture of a hydraulic composition.

The Official Action rejects claims 12-14 and 18-20 under 35 USC §103(a) as being unpatentable over YABUSHITA et al. in view of LINK. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

In connection with this rejection, the added LINK reference is offered for its asserted teaching or suggestion of attaching two rotary shaft portions to opposite end portions of a cylindrical roller portion. However, as each of the rejected claims explicitly recites, or depends from a claim that explicitly recites, the step of forming a plurality of cylindrical molded bodies by press molding a mixture of a hydraulic composition, the ability of the added reference to teach or suggest that for which it is offered fails to overcome the shortcomings of each of the references in terms of the

recited method step that is neither taught nor suggested by such references.

The Official Action rejects claims 15, 17, 21, and 23 under 35 USC §103(a) as being unpatentable over YABUSHITA et al. in view of LINK, and further in view of CLEMENTS. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

Each of the references offered in connection with the present rejection has been addressed above in connection with the previous anticipation rejection and obviousness rejections. As detailed therein, the combination of references fails to teach or suggest the method step related to press molding a mixture of a hydraulic composition. As a consequence, it is respectfully suggested that the present combination of references cannot reasonably be construed as rendering obvious the rejected claims.

The Official Action rejects claims 16 and 22 under 35 USC §103(a) as being unpatentable over YABUSHITA et al. in view of LINK and CLEMENTS, and further in view of SUKENIK. Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

Each of the references offered in connection with the present rejection has been addressed above in connection with the previous anticipation rejection and obviousness rejections. As detailed therein, the combination of references fails to teach or suggest the method step related to press molding a mixture of a

hydraulic composition. As a consequence, it is respectfully suggested that the present combination of references cannot reasonably be construed as rendering obvious the rejected claims.

In light of the amendments described above and the arguments offered in support thereof, Applicant believes that the present application is in condition for allowance and an early indication of the same is respectfully requested.

If the Examiner has any questions or requires further clarification of any of the above points, the Examiner may contact the undersigned Attorney so that this application may continue to be expeditiously advanced.

Attached hereto is a marked-up version of the changes made to the claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 1 has been amended as follows:

--1. (amended) A paper feed roller comprising:
a rotary shaft, and
a cylindrical roller portion [formed by press molding a
mixture of a hydraulic composition, followed by curing and
hardening, and] integrated with an outer periphery of the rotary
shaft,

wherein the cylindrical roller comprises a mixture of a
hydraulic composition.--

Claim 8 has been amended as follows:

--8. (amended) A method for producing a paper feed
roller, comprising [invention comprises] the steps of:

forming a plurality of cylindrical molded bodies by
press molding a mixture of a hydraulic composition, each of the
cylindrical molded bodies having a hole at a central portion
through molding the hydraulic composition, [and]

releasing, curing and hardening the molded bodies,
inserting a rotary shaft though the holes of [a] the
plurality of [the] cylindrical molded bodies, and

connecting [the] adjacent said cylindrical molded
bodies, and thereby integrally forming a cylindrical roller
portion around [the] an outer peripheral surface of the rotary
shaft.--

Claim 10 has been amended as follows:

--10. (amended) A method for producing a paper feed roller, [comprises] comprising the steps of:

forming a plurality of cylindrical green molded bodies each having a hole at a central portion [through] by press molding [the] a mixture of a hydraulic composition, [and]

releasing the green molded bodies,

inserting a rotary shaft though the holes of [a] the plurality of the cylindrical green molded bodies,

connecting [the] adjacent said cylindrical green molded bodies, and

forming a cylindrical shaped body through curing and hardening the connected cylindrical green molded bodies, [and] so as to integrally [forming the] form a cylindrical roller portion around [the] an outer peripheral surface of the rotary shaft.--

Claim 12 has been amended as follows:

--12. (amended) A method for producing [the] a paper feed roller, [comprises] comprising the steps of:

forming a cylindrical roller portion from a cylindrical molded body shaped through press molding a mixture of a hydraulic composition, [and]

releasing, curing and hardening the molded body,

arranging two rotary shaft portions to be concentric with an outer peripheral surface of the cylindrical roller portion, and

attaching the two rotary shaft portions to opposite end portions of the cylindrical roller portion [in the state that while the two rotary shaft portions are concentric with the outer peripheral surface of the cylindrical roller portion], the two rotary shaft portions [are] being aligned with each other, [and thereby forming] so as to form a rotary shaft by the two rotary shaft portions.--

Claim 13 has been amended as follows:

--13. (amended) The paper feed roller-producing method set forth in claim 12, wherein the cylindrical molded [bodies are] body is formed such that holes are provided at center portions of opposite end portions of the cylindrical roller portion to make the holes concentric with [an] the outer peripheral surface of the cylindrical roller portion, the two rotary shaft portions [are] being inserted and integrally fixed into the holes, respectively, such that the rotary shaft portions are aligned with each other, and thereby the rotary shaft is constituted by the two rotary shaft portions.--

Claim 18 has been amended as follows:

--18. (amended) A method for producing a paper feed roller, comprising the steps of:

press molding a mixture of a [the] hydraulic composition to produce cylindrical green molded bodies,

releasing the cylindrical green molded bodies,

forming a cylindrical roller portion from the cylindrical green molded bodies,

arranging two rotary shaft portions to be concentric with an outer peripheral surface of the cylindrical roller portion, and

attaching the two rotary shaft portions to opposite end portions of the cylindrical roller portion [in the state that while the two rotary shaft portions are concentric with the outer peripheral surface of the cylindrical roller portion], the two rotary shaft portions [are] being aligned with each other, [and thereby forming] so as to form a rotary shaft by the two rotary shaft portions, and [then]

curing and hardening the roller portion while [a] arranged on the rotary shaft [is formed by the two rotary shaft portions].--

Claim 19 has been amended as follows:

--19. (amended) The paper feed roller-producing method set forth in claim 18, wherein the cylindrical green molded bodies are formed such that holes are provided at center portions

of opposite end portions of the cylindrical roller portion to make the holes concentric with [an] the outer peripheral surface of the cylindrical roller portion, the two rotary shaft portions [are] being inserted and integrally fixed into the holes, respectively, such that the rotary shaft portions are aligned with each other, and thereby the rotary shaft is constituted by the two rotary shaft portions.--

Claim 22 has been amended as follows:

--22. (amended) The paper feed roller-producing method set forth in claim 19, wherein at least one set of adjacent said cylindrical green molded bodies are connected by a connecting core rod.--